S/0170/64/000/006/0008/0012

ACCESSION NR: AP4041068

AUTHOR: Deyev, V. I.; Solov'yev, A. N.

TITLE: Concerning the boiling mechanism of liquid sodium on a heating surface with natural convection

SOURCE: Inzhenerno-fizicheskiy zhurnal, no. 6, 1964, 8-12

TOPIC TAGS: liquid sodium boiling, bubble boiling, vapor generation center, bubble growth rate, bubble breakaway diameter, thermal conductivity, thermal diffusivity, liquid wetting, vapor nucleus, heating surface depression, viable nucleus size, heat exchange coefficient, natural convection

ABSTRACT: The boiling of liquid sodium on a heating surface with natural convection was studied. A bubble type boiling of a wetting liquid was assumed, and the results were compared to water boiling under normal conditions. The boiling was studied by considering the various stages in the life cycle of a bubble formed at vapor generation centers (holes in the heating surface). Vapor nuclei formed at the generation centers are viable only above a critical size which depends on the form of the vapor generation center and the degree of

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ACCESSION NR: AP4041068

wettability of the surface by liquid sodium. It can be calculated on the basis of the work by S. S. Kutateladze (Osnovy* teorii teploobmena. Mashgiz, 1962), valid for vapor formation in a superheated liquid. This method of calculation may be used in a nonuniform temperature field, provided the temperature change over a distance comparable to the nucleus size is small and can be disregarded. The critical sodium nucleus is larger than that of water and decreases under increasing pressure. The rather large nucleus size required in the case of sodium limits the number of generation centers. On a smooth surface boiling is difficult and occurs only in the superheated liquid at the heating surface. For this reason, in liquid sodium the degree of roughness of the heating surface has a significant effect on the heat exchange. Bubbles above the critical size grow quickly by absorbing vapor of the superheated liquid on the heating surface. The coefficient of heat exchange for liquid sodium at low pressures is close to that for water under normal conditions. The bubble growth rate in sodium is larger than in water as a result of the greater sodium thermal diffusivity; the rate of bubble growth and breakaway diameter can be calculated. The breakaway mechanism differs considerably from that in water due to rapid bubble growth requiring the liquid resistant force to be included. At lower pressures the surface tension force can be ignored, but at higher pressures it becomes comparable to the resistance. At atmospheric

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ACCESSION NR: AP4041068

pressure sodium and water breakaway diameters are comparable, but at lower pressures the sodium bubble diameter is greater. After breakaway of the bubble a new bubble cannot form until the liquid is again superheated. The necessary time can be calculated and is related to thermal conductivity. Since sodium bubbles are larger, the reheat time must be longer in order to produce a sufficiently thick superheated layer. As the bubble rises to the surface there is an intense heat exchange from evaporation into the bubble. This causes constant bubble growth. Sodium bubbles are shaped like mushrooms and rise at 24 cm/sec (as do water bubbles), but their faster growth causes them to attain a larger size than that of water bubbles. Orig. art. has: 6 equations.

ASSOCIATION: Institut teplofiziki Sibirskogo otdeleniya AN SSSR, Novosibirsk' (Institute of Thermal Physics, Siberian division, AN SSSR)

SUBMITTED: 29Apr63 ENCL: 00

SUB CODE: MM, TD NO REF SOV: 003 OTHER: 012

Card 3/3

KAPLUN, A.B.; MAKAROVA, O.P.; SOLOV'YEV, A.N.

New vibration viscosimeters. Zav. lab. 30 no.1:[illegible] (MIRA 17:9)

1. Institut teplofiziki Sibirskogo otdeleniya AN SSSR.

L 45627-65 EWT(1)/EWT(m)/EPF(n)-2/EWG(v)/EPR Pe-5/Ps-4/Pu-4 WW/GG

ACCESSION NR: AP5006476 S/0294/65/003/001/0139/0148

AUTHOR: Solov'yev, A. N.; Kaplun, A. B.

TITLE: Concerning the vibrational method of measuring viscosity of liquids

SOURCE: Teplofizika vysokikh temperatur, v. 3, no. 1, 1965, 139-148

TOPIC TAGS: viscosity, viscosity measurement, vibrational method

ABSTRACT: The article describes a vibrational method developed at the Institut teplofiziki Sibirskogo otdeleniya (Institute of Thermophysics, Siberian Department) AN SSSR for a variety of measurment conditions. The description consists of the theory of the method, analysis of its capabilities, and the latest versions of the actual equipment. The theory is based on determining the viscosity from the equations of motion of a known mass vibrating in the tested liquid. The theoretical analysis shows that of the more than ten possible combinations of quantities in the theoretical formula for determining the viscosity, the greatest practical interest is attached to only two cases, one in which the oscillation frequency is chosen to maintain a phase shift π/2 (amplitude-phase method), and

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L 45027-65
ACCESSION NR: AP5006476

one in which the oscillation frequency is chosen to make the amplitude maximal (amplitude-amplitude method). The two methods are analyzed. Two viscosity meters constructed at the Institute, based on the amplitude-amplitude method, are described. One is a small instrument for molten metals, and the other is a viscosity meter for continuous measurement of the viscosity of a moving liquid. Orig. art. has: 9 figures and 10 formulas.

ASSOCIATION: Institute teplofiziki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Thermophysics, Siberian Department Academy of Sciences SSSR)

SUBMITTED: 12Mar64 ENCL: 00 SUB CODE: ME

NR REF SOV: 009 OTHER: 003

bjo
Card 2/2

L 16742-66 EWT(m)/EPF(n)-2/EWA(d)/T/EWP(t) IJP(c) JD/WW/JG
ACC NR: AP5021922 SOURCE CODE: UR/0207/65/000/004/0174/0176

AUTHOR: Kiriyanenko, A. A. (Novosibirsk); Makarova, O. P. (Novosibirsk); Romanov, V. D. (Novosibirsk); Solov'yev, A. N. (Novosibirsk)

ORG: none

TITLE: Experimental investigation of surface tension in liquid sodium

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 4, 1965, 174-176

TOPIC TAGS: surface tension, ~~liquid~~ sodium, liquid metal

ABSTRACT: An experimental apparatus was built to measure surface tension in liquid sodium at high temperatures. A block diagram and description of the apparatus are given. Pure grade sodium was fed into a crucible (preheated to 400-500°C) filled with pure helium. The experiment was conducted in the temperature range of 100-937°C. Thermocouples were used to measure the temperature of the crucible. The floating plate used in the experiment was made of 1Kh18N9T stainless steel. It was found that immediately after melting, the values of surface tension were about 5-8% lower than those obtained after longer periods (1-1.5 hrs). Measurements of surface tension in liquid sodium are given in

Card 1/2

the following table.

P	T, °C	P	T, °C	P	T, °C
1740	159.5	4740	212.4	2000	165.0
1830	161.0	4880	215.5	3000	184.7
2220	169.6	5460	220.7	4000	201.8
2480	176.2	6370	228.5	5000	215.3
2960	182.7	7320	240.4	6000	226.6
3150	186.0	7870	246.5	7000	237.2
3580	193.8	8910	256.8	8000	247.5
4140	202.2	10160	267.1	9000	257.3
4270	207.2	11120	278.3	10000	267.1
				11000	276.8

Surface tension was calculated according to the formula

$$\sigma = \frac{g(txdl + F)}{2(t + x)}$$

where t, x = width and length of the plate, lx = submersion depth, d = density of the metal and F = force. The interpolation line drawn from the data is given by the equation:

$$\sigma = 202 - 0.91(t - 98).$$

The mean square deviation from this line is 1.47%. Orig. art. has: 3 figures, 1 table.

SUB CODE: 11, 20/ SUBM DATE: 23Mar65/ ORIG REF: 002/ OTH REF: 005

L 32073-66 EWT(m)/T/EWP(t)/ETI IJP(c) DS/JD/WW/JG

ACC NR: AP6014063 SOURCE CODE: UR/0294/66/004/002/0189/0195

62
B

AUTHOR: Solov'yev, A. N.; Makarova, O. P.

ORG: Institute of Heat Physics, Siberian Department, Academy of Sciences, SSSR (Institut teplofiziki Sibirskogo otdeleniya Akademii nauk SSSR)

TITLE: Investigation of sodium and potassium surface tension

SOURCE: Teplofizika vysokikh temperatur, v. 4, no. 2, 1966, 189-195

TOPIC TAGS: liquid metal, surface tension

ABSTRACT: The surface tension of liquid sodium and potassium was determined up to 1000°C and 800°C, respectively. The measuring apparatus is described in detail. A thin flat plate insertion into the liquid metal was used as the most direct method to make these measurements. The apparatus was tested with other liquids for calibrations and experimental checks. About 1% deviation from accepted data was achieved. Some effect of impurities in the tested metals was noted and resulted in 5% to 8% differences in measured values of the tension when these measurements were taken just after melting and a few hours after melting. The temperature dependence of the surface tension is shown graphically and compared with results of other workers and some of the differences are discussed. Orig. art. has: 5 figures, 2 tables.

SUB CODE: 20/11/ SUBM DATE: 12Mar65/ ORIG REF: 002/ OTH REF: 006

Card 1/2 Liquid Metal UDC: 532.6:546.3

ACC NR: AP6029775 SOURCE CODE: UR/0294/66/004/004/0503/0506

AUTHOR: Solov'yev, A. N.; Kaplun, A. B.

ORG: Institute of Thermophysics, Siberian Department AN SSSR (Institut teplofiziki Sibirskogo otdeleniya AN SSSR)

TITLE: Approximate calculation of the surface tension of molten alkali metals

SOURCE: Teplofizika vysokikh temperatur, v. 4, no. 4, 1966, 503-506

TOPIC TAGS: alkali metal, liquid metal, surface tension, fluid density

ABSTRACT: In view of the contradictory experimental and theoretical data on the surface tension of liquid alkali metals, the authors derive an approximate formula describing the effect of density on surface tension in these simple liquids based on the free volume concept. The final formula

$$\sigma = \frac{RTd}{(V - V_0) \cdot 2}\left[1 - \frac{3}{2}\frac{V - V_0}{V}\right]$$

is easily reduced to the Eötvös equation if density is a linear function of temperature

$$\sigma\left(\frac{\mu}{\rho}\right)^{2/3} = C(T_k - T_i\delta)$$

UDC: 669.88;532.612

Card 1/2

where μ is molecular weight, ρ is density, δ is the thickness of the interphase layer and C is the Eötvös constant given by the formula

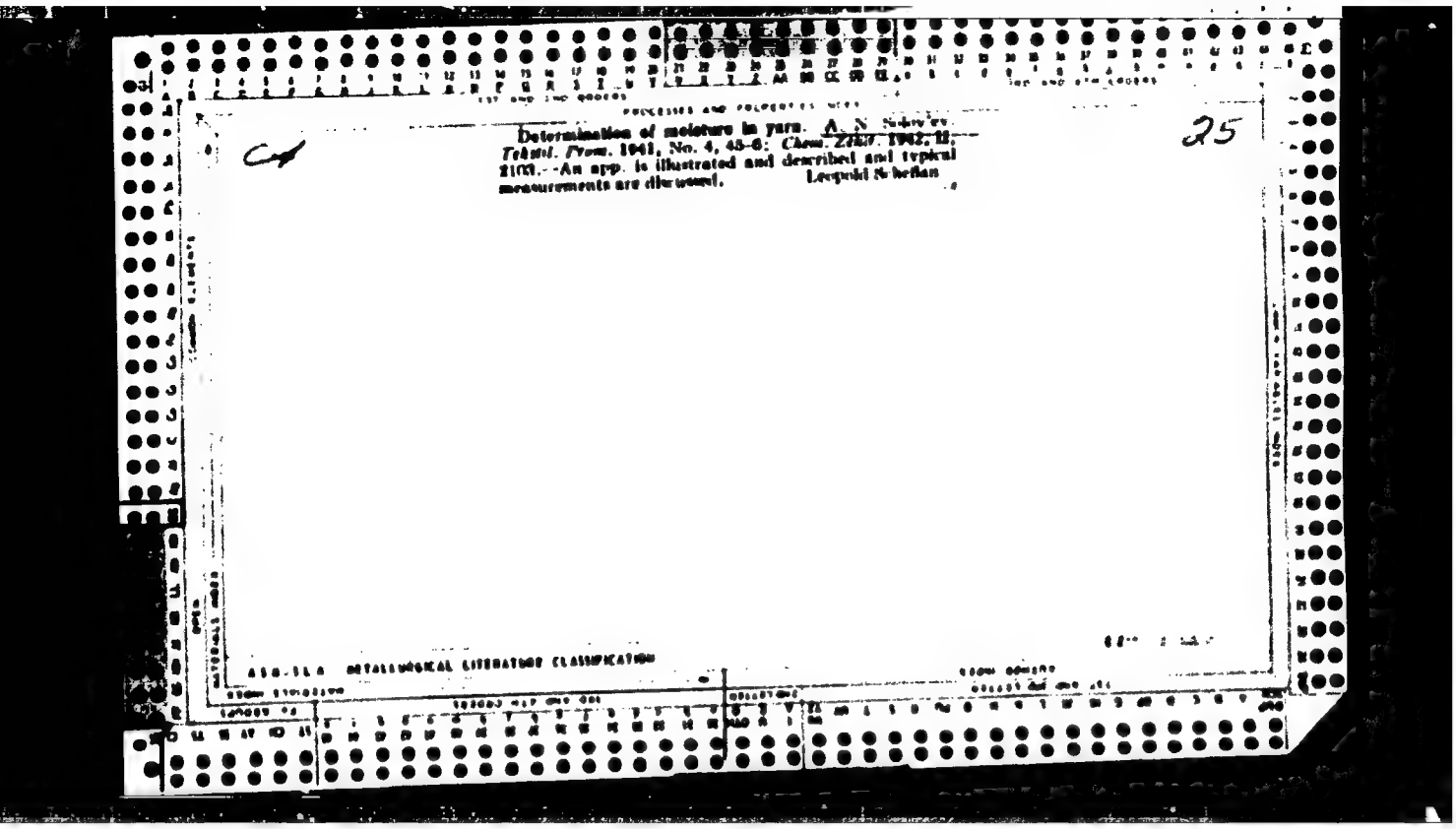
$$C = \frac{Rm_H^{1/6}}{2aT_{cr}}$$

where m_H is the mass of a hydrogen atom. Substitution of the constants in the final formula gives the expression

$$\sigma = 0{,}247T\left(\frac{\rho}{\mu}\right)^{2/3}\frac{(3\rho/\rho_0)-1}{1-(\rho/\rho_0)}$$

which is convenient for practical calculations. Results calculated by this formula for lithium, sodium, potassium, rubidium and cesium are compared with experimental data at temperatures from 29 to 1300°C. The divergence amounts to only a few percent. Orig. art. has: 2 tables, 6 formulas.

SUB CODE: 20/ SUBM DATE: 10Mar65/ ORIG REF: 004/ OTH REF: 008



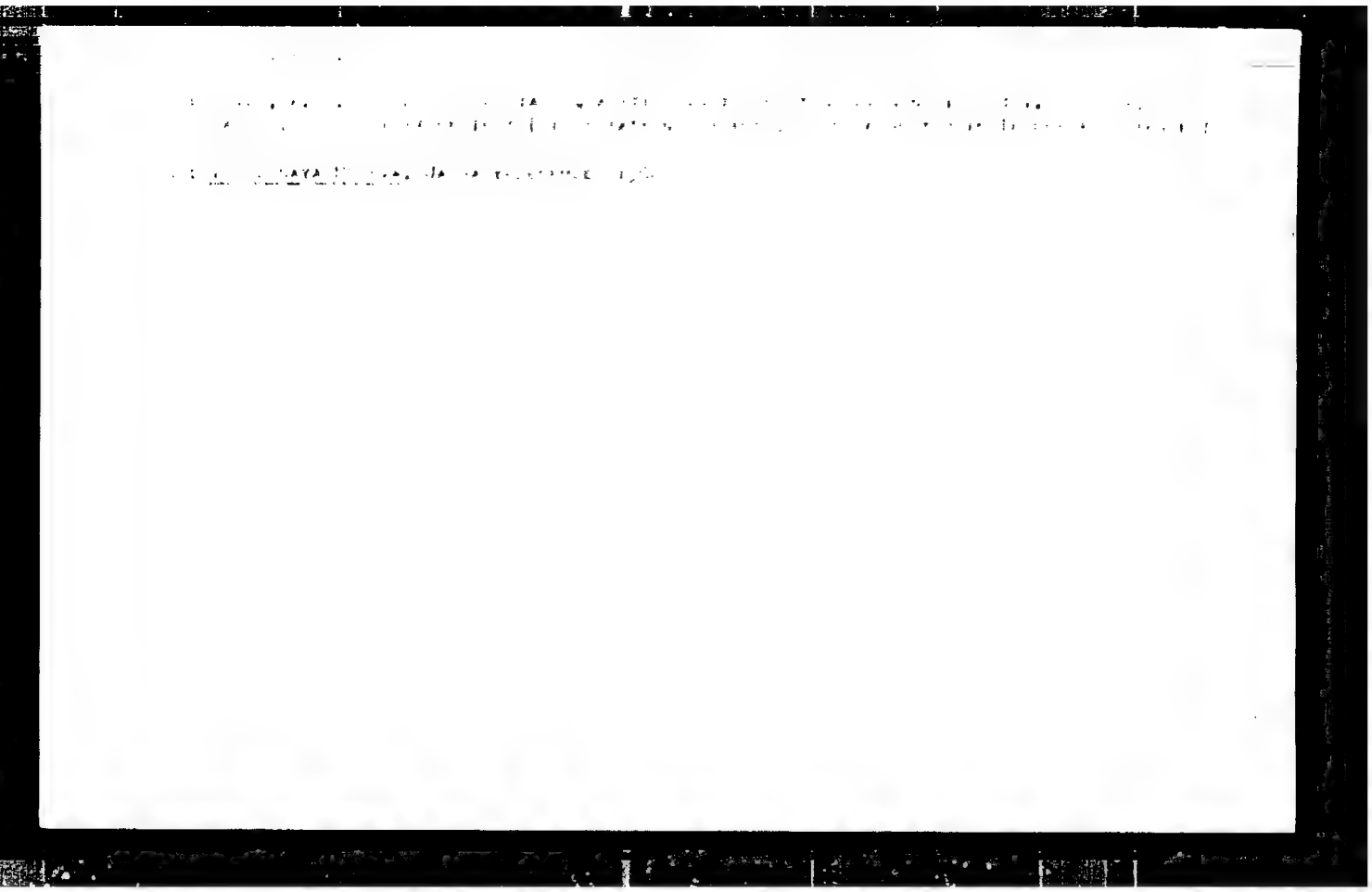
Determination of moisture in yarn. A. N. Schwartz. *Tekstil. Prom.* 1941, No. 4, 45–6; *Chem. Zentr.* 1942, II, 2103.—An app. is illustrated and described and typical measurements are discussed. Leopold Schefan

25

SOLOV'YEV, A. N.

23367 Raschet Norm Rasxodnoty Polufabrikatov Zhirokonury Denil. Tkatil. Prom-st', 1949, No. 6, c. 11-13

SO: LETOPIS NO. 31, 1949



SOV/124-58-7-8310

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 7, p 132 (USSR)

AUTHOR: Solov'yev, A.N.

TITLE: Deformation and Endurance of Cotton Yarn of Various Twists (Deformatsiya i vynoslivost' khlopchatobumazhnoy pryazhi raznoy krutki)

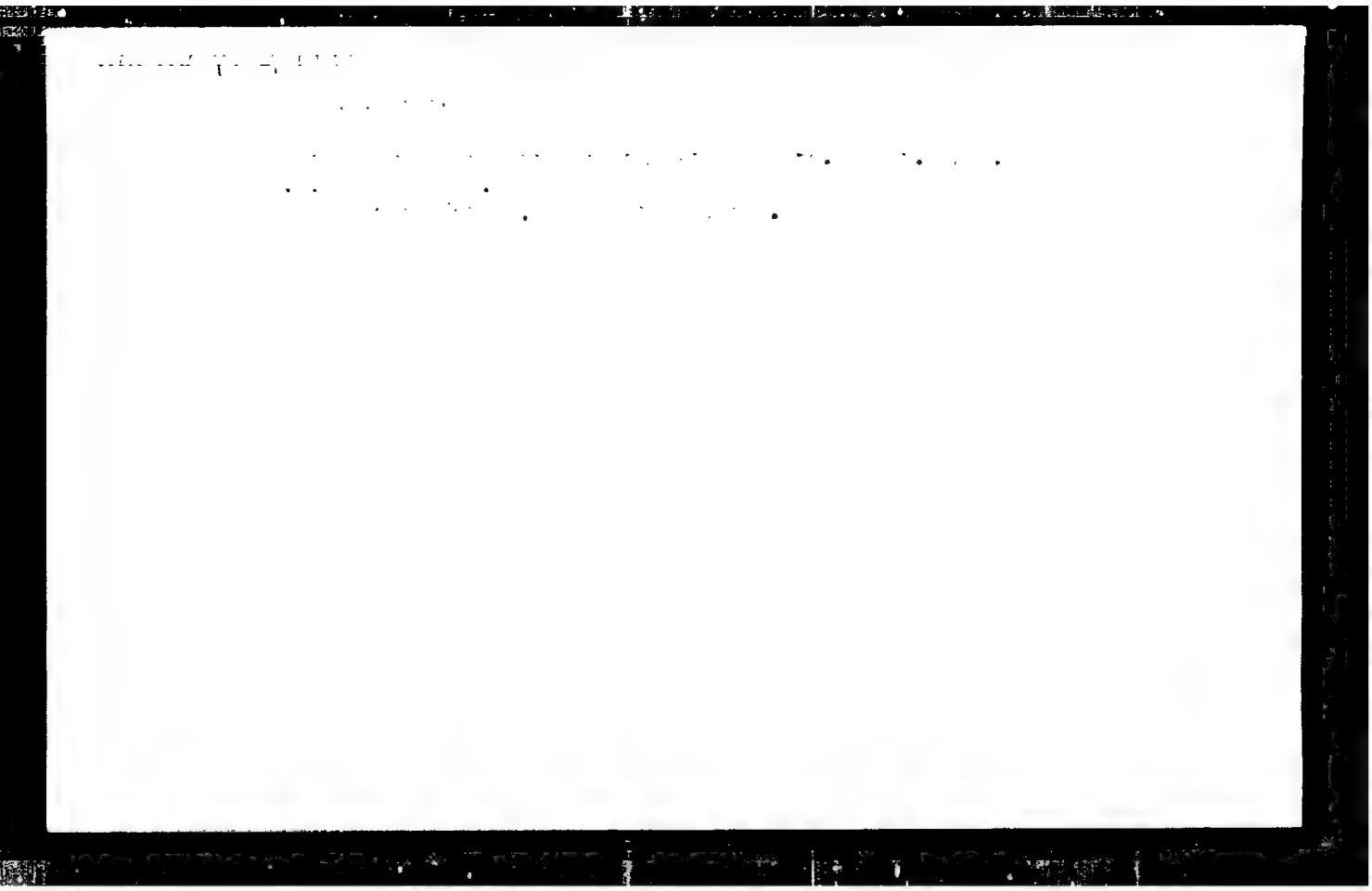
PERIODICAL: Nauchno-issled. tr. Mosk. tekstil'n. in-t, 1954, Vol 14, pp 134-149

ABSTRACT: Results are described of an investigation made of the influence of a yarn's twist on the elastic and plastic parts of the gross deformation in yarn subjected to tensile stress and on the endurance of yarn of different counts.

G.P. Reshelyauskas

1. Thread--Mechanical properties 2. Thread--Test results

Card 1/1



SOLOV'YEV, A.N.

Determination of the maximum shrinking of fabric. A. N. Solov'ev. *Tekstil. Prom.* 16, No. 2, 40–8(1956).—Math. equations for the detn. of the max. shrinking of fabric are derived. Elisabeth Barabash

1

SOLOV'YEV, A.N., professor.

Correlation between the coefficient of variation and irregularity.
Tekst.prom.16 no.4:44-45 Ap '56. (MLRA 9:7)
(Textile fabrics)

SOLOV'IEV, A.N., professor.

Properties of the filling of knit goods. Leg.prom. 17 no.6:39-40 Je '57. (MLRA 10:8)

(Knit goods)

SOLOV'YEV, A.N.

Effect of twist and ply number on the properties of twisted yarn.
Izv. vys. ucheb. zav.; tekh. tekst. prom. no.3:7-19 '58. (MIRA 11:7)

1. Moskovskiy tekstil'nyy institut.
(Yarn--Testing)

SOLOV'YEV, A.N.

Changes in the properties of cotton yarn under the effect of double twist. Izv. vys. ucheb. zav.; tekh. tekst. prom. no.5:3-17 '58. (MIRA 11:12)

1.Moskovskiy tekstil'nyy institut.
(Cotton yarn--Testing)

AUTHOR: Solov'yev, A.N., Professor SOV/28-58-6-17/34

TITLE: An Evaluation of the Grading of Textile Materials According to the Inequality of Their Properties (Otsenka sortnosti tekstil'nykh materialov po neravnomernosti ikh svoystv)

PERIODICAL: Standartizatsiya, 1958, Nr 6, pp 59-60 (USSR)

ABSTRACT: The development of standards for the grading of textile materials must consider not only the limit values of the different types, but also the errors made during sorting. For establishing a rational difference between the types, the marginal index of probability F is used. If the actual inequality is close to the average value of the norm, the probability for the correct determination of the sort is a little lower than 0.95. The probability may be increased by reducing the number of types and by increasing the difference between the norms as well as by increasing the number of tests for measuring the inequality.

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SOV/28-58-6-17/34

An Evaluation of the Grading of Textile Materials According to the Inequality of Their Properties

For every norm 200 measurements are necessary. There is 1 table and 1 Soviet reference.

ASSOCIATION: Moskovskiy tekstil'nyy institut (Moscow Textile Institute)

Card 2/2

SOLOV'YEV, A.N., prof., doktor tekhn.nauk

Estimating the nonuniformity of yarn weight. Izv.vys.ucheb.zav.; tekh.leg.prom. no.2:90-97 '59. (MIRA 12:10)

1. Moskovskiy tekstil'nyy institut.
(Yarn)

SOLOV'YEV, A.N., prof., doktor tekhn.nauk

Dependence of the difference in weight of single and double ply yarns on the number of plies, count and direction of twists. Izv.vys.ucheb.zav.; tekh.leg.prom. no.3:84-91 '59. (MIRA 12:12)

1. Moskovskiy tekstil'nyy institut. Rekomendovana kafedroy tekstil'nogo materialovedeniya.
(Yarn)

SOLOV'YEV, A.N.

Comparing the various methods for determining the properties of cotton. Izv. vys. ucheb. zav.; tekh. tekst. prom. no.5: 26-35 '59 (MIRA 13:3)

1. Moskovskiy tekstil'nyy institut.
(Cotton--Grading)

SOV/28-59-3-5/25

25(6)

AUTHOR: Solov'yev, A.N., Professor, Doctor of Technical Sciences

TITLE: Repeated Standard Analyses of Cotton and Yarn (Povtornyye standartnyye analizy khlopka i pryazhi)

PERIODICAL: Standartizatsiya, 1959, Nr 3, pp 24 - 26 (USSR)

ABSTRACT: Because of lack of time, the reception of cotton and cotton yarn at cotton mills usually is made with only one analysis, as prescribed by the standard "GOST 3274-46" or, respectively, "GOST 6611-55". If the result is doubtful, and the result of repeated analyses is different, there arises the question: what difference between the two results can be considered permissible and when is a third analysis to be done? The author answers the question by reconstructing his recommendations for statistical quality control with a large number of tests [Ref 1], which were based

Card 1/2

SOV/28-59-3-5/25

Repeated Standard Analyses of Cotton and Yarn

on a formula for the mean error value. There are 3 tables and 3 Soviet references.

ASSOCIATION: Moskovskiy tekstil'nyy institut (Moscow Textile Institute)

Card 2/2

SOLOV'YEV, Aleksey Nikolayevich; GORDEYCHIK, G.M., red.; BATYREVA, G.G., tekhn. red.

[Measurement and evaluation of the properties of textiles] Izmereniia i otsenka svoistv tekstil'nykh materialov. Moskva, Izd-vo nauchno-tekhn.lit-ry RSFSR, 1961. 142 p. (MIRA 15:2)

(Textile industry--Testing) (Mensuration)

KUKIN, Georgiy Nikolayevich, prof.; SOLOV'YEV, Aleksey Nikolayevich, prof.; KISELEV, A.K., dotsent, retsenzent; PAKSHVER, A.B., prof., retsenzent; BUDNIKOV, V.I., dotsent, retsenzent; LAZAREVA, S.Ye., kand.tekhn.nauk, retsenzent; LUVISHIS, L.A., kand.tekhn.nauk, retsenzent; TUMAYAN, S.A., kand.tekhn.nauk, retsenzent; SHTEYNGART, M.D., red.; SHVETSOV, S.V., tekhn.red.

[Guide to textile materials] Tekstil'noe materialovedenie. Pod obshchei red. G.N.Kukina. Moskva, Izd-vo nauchno-tekhn.lit-ry. Pt.1. 1961. 303 p. (MIRA 15:4)

1. Ivanovskiy tekstil'nyy institut (for Kiselev). 2. Vsesoyuznyy zaochnyy institut legkoy i tekstil'noy promyshlennosti (for Pakshver). 3. Tashkentskiy tekstil'nyy institut (for Budnikov). 4. Vsesoyuznyy institut promyshlennosti lubyanykh volokon (for Lazareva). 5. TSentral'nyy nauchno-issledovatel'skiy institut sherstyanoy promyshlennosti (for Luvishis). 6. TSentral'nyy nauchno-issledovatel'skiy institut shelkovoy promyshlennosti (for Tumayan).

(Textile fibers)

IVANOV, Sergey Savel'yevich, kand. tekhn.nauk; LEBEDEVA, Nina Nikolayevna; NILOVA, Varvara Ivanovna; TSISHEVSKIY, Ivan Nikolayevich, kand. tekhn. nauk, Prinimali uchastiye: EYGES, Ye.G.; FLEKSER, L.A.; SOLOV'YEV, A.N., dokt.tekhn.nauk, prof., retsenzent; ABRAMCHUK, N.N., inzh., retsenzent; CHUGREYEVA, V.N., red.; TRISHINA, L.A., tekhn. red.; VINOGRADOVA, G.A., tekhn. red.

[Methods of determining the properties of cotton fibers] Metody opredeleniia svoistv khlopka-volokna. Pod red. S.S.Ivanova. Moskva, Rostekhizdat, 1962. 234 p. (Cotton—Testing) (MIRA 16:2)

SOLOV'YEV, A. N.

Determining the stiffness characteristics of yarn in stretching. Izv. vys. ucheb. zav.; tekh. tekst. prom. no.4:18-25 '62. (MIRA 15:10)

1. Moskovskiy tekstil'nyy institut.

(Yarn--Testing) (Elasticity)

SOLOV'YEV, A.N.

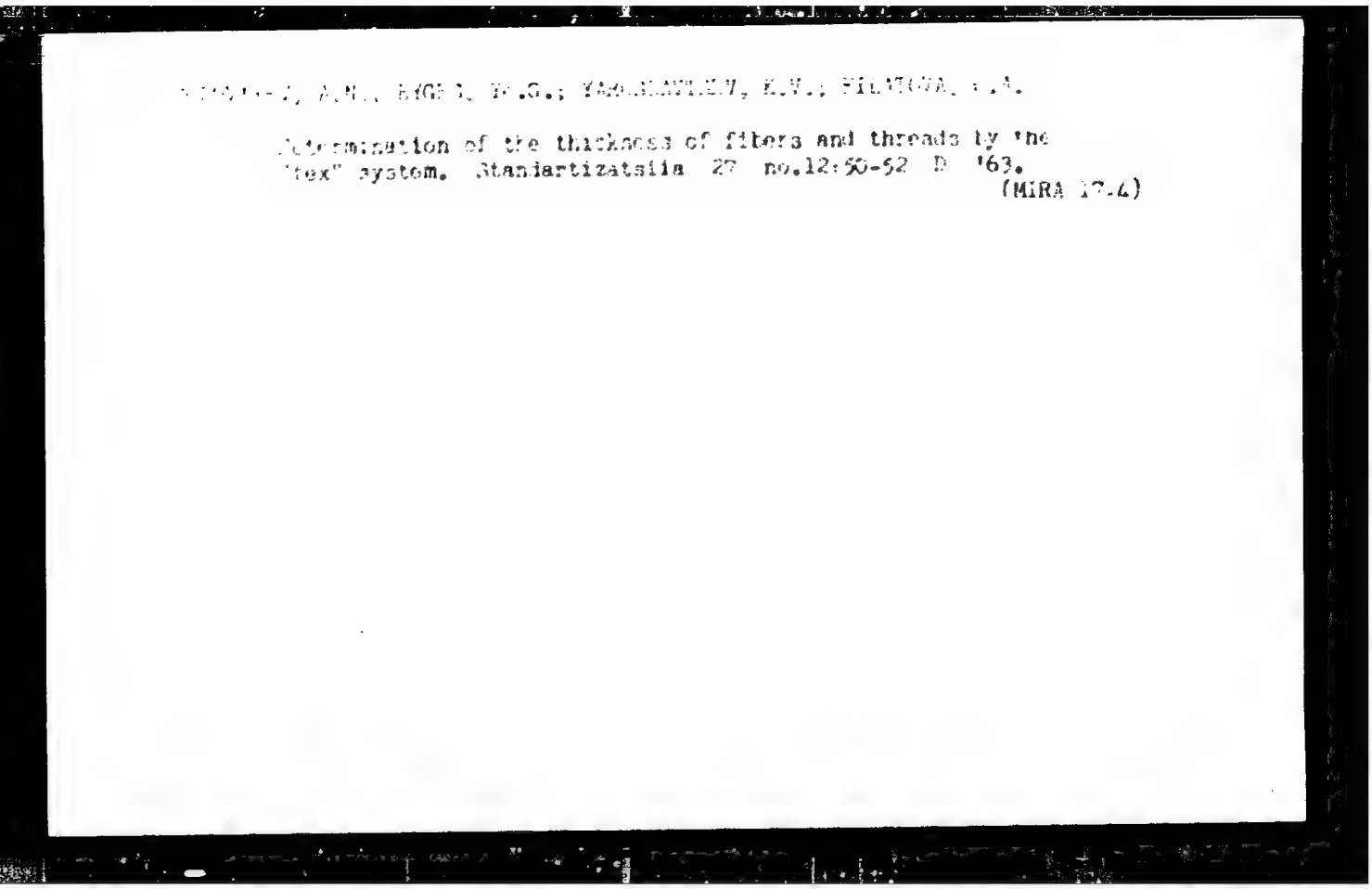
Comparing the stiffness of various type yarns in case of tension. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.5:17-20 '62. (MIRA 15:11)

1. Moskovskiy tekstil'nyy institut.
(Textile fibers--Testing) (Elasticity)

SOLOV'YEV, A.N.

Inspection of goods by samples free of defects. Izv. vys. ucheb. zav.; tekh. tekst. prom. no.4:12-16 '63.
(MIRA 16:11)

1. Moskovskiy tekstil'nyy institut.



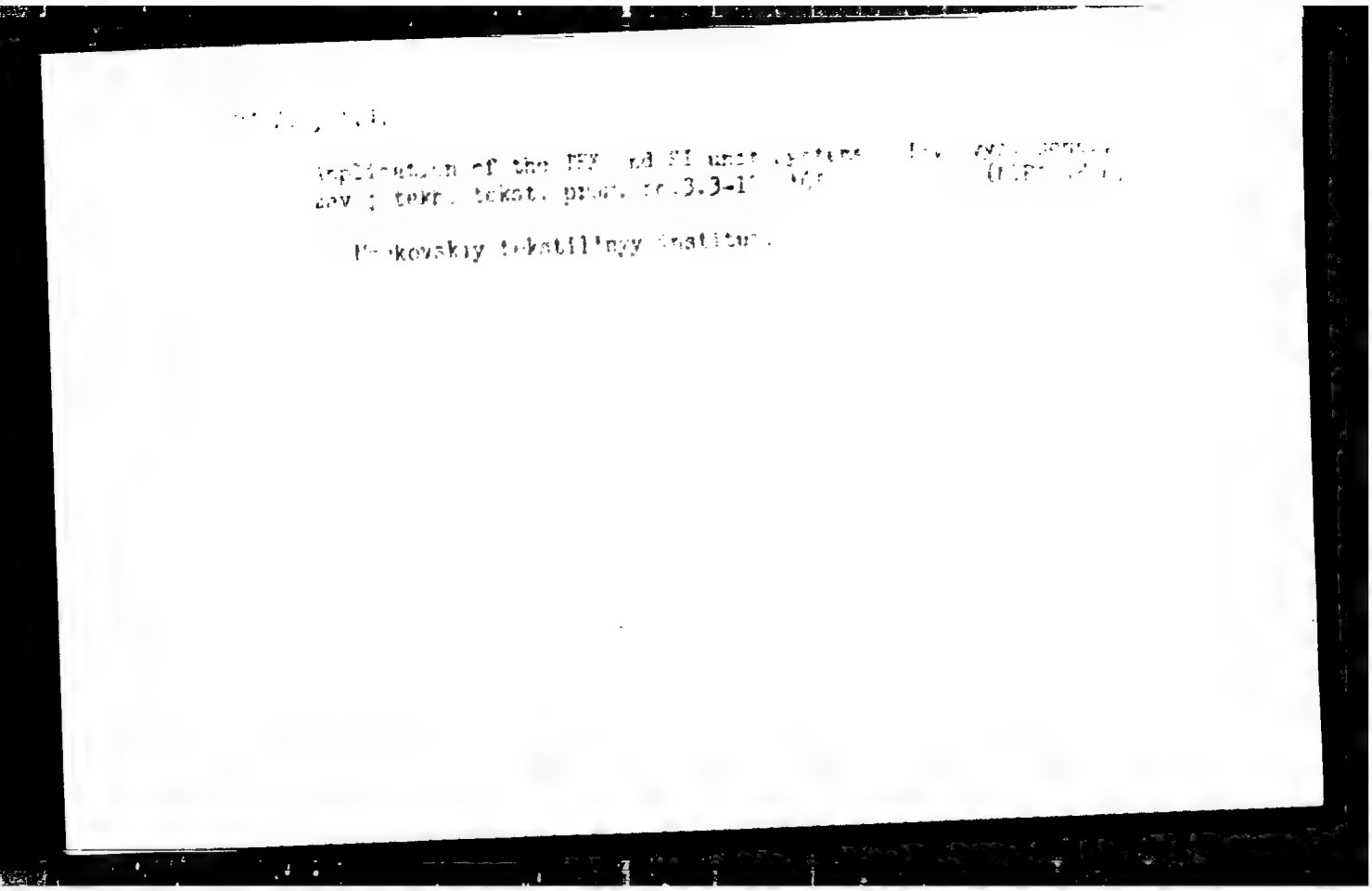
[illegible], A.M., [illegible] V.G.; [illegible], K.V.; [illegible], L.A.

Determination of the thickness of fibers and threads by the "Tex" system. Standartizatsiia 27 no.12:50-52 D '63. (MIRA 17:4)

S[illegible]V'YEV, [illegible]

Determining textile fabric porosity. Izv.vys.ucheb.zav.; tekh.tekst. prom. no.3:159-161 '65. (MIRA [illegible])

1. Moskovskiy tekstil'nyy institut.



Acc Nr: AT6034013 SOURCE CODE: UR/0213/66/006/005/0906/0911

AUTHOR: Solov'yev, A. N. (Leningrad); Kuzovlev, G. M. (Leningrad)

ORG: none

TITLE: Water-temperature anomaly near the middle of the east coast of the Caspian Sea

SOURCE: Okeanologiya, v. 6, no. 5, 1966, 906-911

TOPIC TAGS: hydrographic survey, temperature gradient, hydrometeorology, ocean property, sea water, low temperature, water temperature / Caspian Sea

ABSTRACT: The summer water temperature trends are analyzed using long-period observations from a number of hydrometeorological stations in the middle of the west and east coasts of the Caspain Sea. Some examples showing the dependence of water temperature on the wind-induced onshore and offshore movements of water are given. The hypothesis attributing the abnormally low water temperatures near the east coast of the Caspian Sea to the inflow of ground water is shown to be unfounded. The main cause for the lower water temperature near the east coast as compared to the west coast is the offshore movements of water. Orig. art. has: 4 tables.

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 006

Card 1/1 UDC: 551.465.46/62/63(262.8)

[redacted] P.

"Poliomeylitis"

pp. 57 Voyenno-med. zhur. No.10 October, 1955

SOLOV'YEV, A.P., inzh.

Mass-produced, diesel-engine propelled freighters with 10,000 t. dead weight. Sudostroenie 22 [i.e.23] no.10:1-4 O '57. (MIRA 11:2)
(Poland--Shipbuilding) (Freighters)

SOLOV'YEV, A. P., inzh.; KABANOV, V. N., inzh.

Experience in the operation of small boiler units fired with milled peat. Torf. prom. 40 no.3:34-35 '63. (MIRA 16:4)

1. Torfopredpriyatiye Tesovo IV.

(Peat) (Boilers—Firing)

L 12347-63 EWT(m)/BDS AB S/081/63/000/005/027/075 51

AUTHOR: Solov'yev, A. P.

TITLE: A new type of pycnometer for determination of specific gravity of liquids

PERIODICAL: Referativnyy zhurnal, Khimiya, no. 5, 1963, 142, abstract 5D37, (Uch. zap. Mordovsk. un-t, 1962, no. 16, 83-85)

TEXT: A pycnometer is described for determination of specific gravity of nonvolatile aqueous solutions. The pycnometer consists of a reservoir and two capillaries, one of which is bent. The internal diameter of the capillaries depends on the viscosity of the investigated liquids (1.5 - 2 mm for the more viscous, 1.2 - 0.8 for the less viscous). The special feature of this pycnometer is that through its use the weight of any liquid may be determined at various temperatures without pouring the liquid out of the pycnometer. See also R. Zh. Khim., 1958, no. 12, 38946. I. Yefimova.

[Abstractor's note: Complete translation]

Card 1/1

SOLOV'YEV, A.P., inzh.

Using statistical methods for strength evaluation of structures. (MIRA 18:3)
Sudostroenie 30 no.11:11-13 N '64.

BYKOVA, I.V., st. nauchn. sotr.; STEPANOV, A.S., st. nauchn. sotr.; SOLOV'YEV, A.F.; AFANAS'YEVA, A.A., st. nauchn. sotr.; BOGATYREVA, L.M.; LIFENTSOVA, A.S.; SHUBA, L.S., red.; TIMOFEYEVA, Ye.A., red.

[Food product substitutes in the textile industry] Zameniteli pishchevykh produktov v tekstil'noi promyshlennosti. Moskva, 1963. 67 p. (MIRA 17:12)

1. Moscow. TSentral'nyy institut nauchno-tekhnicheskoy informatsii legkoy promyshlennosti. 2. Rukovoditel' laboratorii spetsial'noy otdelki Ivanovskogo nauchno-issledovatel'skogo instituta khlopchato-bumazhnoy promyshlennosti (for Solov'yev). 3. Ivanovskiy nauchno-issledovatel'skiy institut khlopchato-bumazhnoy promyshlennosti (for all except Shuba, Timofeyeva).

SOLOV'YEV, A.P.

Results of the second All-Union Volunteer Inspection of the carrying out of plans for scientific research and introducing the 1963 achievements of science and technology to the national economy. Stal' 24 no.6:486-488 Je '64. (MIRA 17:9)

1. Zamestitel' predsedatelya Tsentral'nogo pravleniya Nauchno-tekhnicheskogo obshchestva chernoy metallurgii.

SOLOV'YEV, A.S., inzh.

Use of a magnetic sliding clutch in atuomtized hoisting. Nauch. dokl. vys. shkoly; gor. delo no.3:198-201 '58. (MIRA 11:9)

1.Predstavlena kafedroy gornoy elektrotekhniki Leningradskogo gornogo instituta im. G.V. Plekhanova.
(Mine hoisting) (Clutches (Machinery)) (Electromagnets)

[illegible] — (diss) "[illegible]

[illegible]," Novocharchassk, 1960, 22 pp, 200 cop

(Novocherkassk Polytechnical Institute im Cergo Ordzhonikidze) (KL, 43-60, 119)

Vsesoyuznoye ob"yedinennoye soveshchaniye po avtomatizatsii proizvodstvennykh protsessov v mashinostroyenii i avtomatizirovannomu elektroprivodu v promyshlennosti. 3d, Moscow, 1959

Elektroprivod i avtomatizatsiya promyshlennykh ustanovok; trudy soveshchaniya (Electric Drive and Automation in Industrial Systems; Transactions of the Conference) Moscow, Gosenergoizdat, 1960. 470 p. 11,000 copies printed.

General Eds.: I.I. Petrov, A.A. Sirotin, and M.G. Chilikin; Eds.: I.I. Bad, and E.P. Nilayev; Tech. Eds.: K.P. Voronin, and G.Ye. Larionov.

PURPOSE: The collection of reports is intended for the scientific and technical personnel of scientific research institutes, plants and schools of higher education.

COVERAGE: The book is a collection of reports submitted by scientific workers at plants, scientific institutes and schools of higher education at the third Joint All-Union Conference on the Automation of Industrial Processes in Machine Building and Automated Electric Drives in Industry held in Moscow on May 12-16, 1959. The Conference was called by the Academy of Sciences USSR, the Gosplan USSR (State Planning Commission USSR), the GNTK SSSR, the Gosudarstvennyy komitet po avtomatizatsii i mashinostroyeniyu (State Committee on Automation and Machine Building) and the Natsional'nyy komitet SSSR po avtomaticheskomu upravleniyu (USSR National Committee on Automatic Controls) and prepared by the Nauchno-tekhnicheskiy komitet po avtomatizirovannomu elektroprivodu (Scientific and Technical Committee on Automated Electric Drives), the MEI (Moscow Institute of Energetics), the VNIIEM, the IAT (Institute of Automation and Telemechanics) of the Academy of Sciences USSR, and the Komissiya po tekhnologii mashinostroyeniya Instituta mashinovedeniya AN SSSR (Commission on the Technology of Machine Building of the Institute of Science of Machines of the Academy of Sciences USSR). It was the purpose of the Editorial Board to arrange the reports in a way which would ensure a relatively systematic presentation of theoretical and practical problems relating to electric drives and automatic controls of industrial mechanisms used in various branches of industry. Basic problems of automated electric drive and their solution are outlined. The book also contains articles on electric machinery and means of automation. Considerable attention is paid to noncontact automatic control systems, including systems with semiconductor devices and magnetic amplifiers, and to computers intended both for the analysis and the synthesis of linear and nonlinear automatic regulation and control systems. Reports already published in journals or official publications have been considerably abbreviated; those which have appeared in volume V of MEI EP transactions or in the journal "Elektrichestvo" are marked with an asterisk. No personalities are mentioned. References accompany some of the papers.

PART I. GENERAL PROBLEMS CONCERNING THE THEORY AND PRACTICE OF ELECTRIC DRIVE AND AUTOMATION OF CONTROL

SOLOV'YEV, A.S.; STRUNIN, G.B.

Industrial testing of braking devices for mine hoisting machines. Shor.nauch.rab.stud. LGI no.2:125-134 '57. (MIRA 13:4)

1. Leningradskiy ordenov Lenina i Trudovogo Krasnogo Znameni gornyy institut im. G.V.Plekhanova. Predstavleno dotsentom L.P.Severinym.
(Hoisting machinery—Brakes)

SOLOV'YEV, A.S., inzh.

Method of calculating an electric sliding clutch control circuit for automatized mine hoisting. Nauch. dokl. vys. shkoly; gor. delo vys. shkoly; gor. delo no.1:121-126 '59. (MIRA 12:5)

1.Predstavlena kafedroy gornoy elektrotekhniki Leningradskogo gornogo instituta im. G.V. Plekhanova.
(Mine hoisting) (Automatic control)

SOLOV'YEV, A.T., inzh.

Level measurement by remote control of the liquid cargo in tank vessel compartments. Sudostroenie 28 no.9:64-66 S '62. (MIRA 15:10)

(Liquid level indicators) (Tank vessels)
(Remote control)

SOLOV'YEV, A.T.

Dome-like structures of granite masses. Inform.sbor. VSEGEI no.1:112-113 '55. (MLRA 9:12)

(Geology, Structural) (Granite)

VOZNESENSKIY, D.V.; AMELANDOV, A.S.; GEYSLER, A.N.; GOLUBYATNIKOV, V.D.; [deceased]; DOMAREV, V.S.; DOMINIKOVSKIY, V.N.; DOVZHIKOV, A.Ye.; ZAYTSEV, I.K.; IVANOV, A.A ; ITSIKSON, M.I.; IZOKH, E.P., KNYAZEV, I.I.; KORZHENEVSKAYA, A.S.; MISHAREV, D.T.; SEMENOV, A.I.; MOROZENKO, N.K.; NEFEDOV, Ye.I.; RADCHENKO, G.P.; SERGIYEVSKIY, V.M.; SOLOV'YEV, A.T.; TALDYKIN, S.I.; UNKSOV, V.A.; KHABAKOV, A.V.; TSEKHOMSKIY, A.M.; CHUPILIN, I.I.; SHATALOV, Ye.T., glavnyy redaktor; KRASNIKOV, V.I., redaktor; MIRLIN, G.A., redaktor; RUSANOV, B.S, redaktor; POTAPOV, V.S., redaktor izdatel'stva; GUROVA, O.A., tekhnicheskiy redaktor.

[Instructions for organization and execution of geological surveys in scales of 1:50,000 and 1:25,000] Instruktsiia po organizatsii i proizvodstvu geologo-s"emochnykh rabot masshtabov 1:50,000 i 1:25,000. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr. 1956. 373 p. (MLRA 10:6)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr. (Geological surveys)

15-57-7-9367

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 7, pp 90-91 (USSR)

AUTHOR: Solov'yev, A. T.

TITLE: Some Remarks on the Article of A. A. Yakzhin "The Sequence of Formation of Different Fluorite Varieties in the Fluorite Deposits of Trans-Baykal" (Nekotoryye zamechaniya po povodu stat'i A. A. Yakzhina "Posledovatel'nost' vydeleniya razlichnykh raznovidnostey flyuorita v flyuoritovykh mestorozhdeniyakh Zabaykal'ya")

PERIODICAL: Inform. sb. Vses. n.-i. geol. in-t, 1956, Nr 3, pp 146-148

ABSTRACT: A. A. Yakzhin has noted a definite sequence in the formation of variously colored varieties of fluorite (RZh Geo, 1955, 7645). These are: 1) earliest, dark violet, predominantly of cubical aspect; 2) green and

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20-119-1-43/52

AUTHORS: Solov'yev, A. T., Levando, Ye. P.

TITLE: Gearksutite From Eastern Zabaykal'ye (Transbaikalia) (Gearksutit iz Vostochnogo Zabaykal'ya)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 119, Nr 1, pp. 158-160 (USSR)

ABSTRACT: From Kalanguyskoye fluorite deposit the authors got samples of a mineral which was because of macroscopic similarity earlier considered as kaolinite that is widely distributed here. Nobody investigated it before. The accumulations of this mineral are in its parent deposits mainly bound to the middle and lower parts of a quartz-fluorite vein which intersects a sandy-schistous Middle Jurassic mass. Beside amorphous silica and fluorite pyrite, marcasite and kaolinite are found here. The above-mentioned mineral is white and sticks slightly to the tongue. Its cryptocrystalline aggregate shows an uneven break (Figure 1) and eagerly absorbs water which indicates a high porosity. The mineral is soluble in HCl and HNO_3 by slight heating. Under the microscope one sees that the mineral substance is incompletely crystallized. The individuals, with blurred contours, are only to be distinguished

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Gearksutite From Eastern Zabaykal'ye (Transbaikalia)

with high magnifications (Figure 2). A considerable portion of the substance is not crystallized at all. The individuals well to be distinguished by their sections show a characteristic position: vertical to each other. Well developed small crystals can be better seen in immersion preparations than on sections (Figure 3). Lengthening of the mineral is positive; $c:N_g \leq 15^\circ$; the optical sign positive; 2V - is very little, $N_g = 1.460$; $N_p = 1.451$. The chemical and thermal analyses together with the above-mentioned optical data show that the mineral is gearksutite. The chemical analysis (Table 1) makes it possible to calculate the following formula for it: $CaAl(F,OH)_5$ or $Ca_2Al_2(F,OH_{10})$. Figure 4a gives the heating curve of the mineral from the steppe part of Kazakhstan (Figure 4b). The curves from both places of finding are very similar. 1) The strong endo-effect is probably connected with the separation of water (398°C). 2) The strong endo-effect occurs at 523°C and possibly mainly corresponds to the separation of fluorine from AlF_3. The third endo-effect lies at 898°C and apparently corresponds to the dissociation of CaF_2. The mineral under review was found in larger pieces (up to 10 cm in diameter). As gearksutite was earlier mistaken for kaolinite, its much wider

SOLOV'YEV, A.T.; STRUVE, N.V.

New data on recent fluorite formation in the gold-molybdenum belt of eastern Transbaikalia. Inform. sbor. VSEGEI no. 20:75-85 '59. (MIRA 14:1)

(Transbaikalia—Fluorite)

SOLOV'YEV, A.T.

Calcium source in the formation of fluorite deposits. Trudy VSEGEI 57:135-139 '61. (MIRA 15:4)
(Fluorite)

SOLOV'YEV, A.T.

Bands and stages of fluorite mineralization of eastern Transbaikalia. Trudy VSEGEI 57:141-145 '61. (MIRA 15:4)
(Transbaikalia--Fluorite)

SOLOV'YEV, A.T.; CHUPKOV, V.V.

Association of the fluorite mineralization with intrusive formations in western Transbaikalia. Trudy VSEGEI 83:83-89 '62.
(MIRA 16:9)

SOLOV'YEV, A.T.

Structural characteristics of ores in the Kalanyu (western Transbaikalia) fluorite deposit and their genetic significance. Trudy VSEGEI 83:91-100 '62. (MIRA 16:9)

BIRYUKOV, V.I.; SOLOV'YEV, A.T.

Types of lead-zinc mineralization in the Korean People's Democratic Republic. Trudy VSEGEI 100:94-108 '63. (MIRA 17:3)

SOLOV'YEV, A.T.

Role of fracturing and the physical properties of rocks in the formation of fluorite deposits in southern Yakutia. Trudy VSEGEI 108:184-188 '64. (MIRA 18:2)

BABOSHIN, V.A.; BOROVIKOV, P.P.; ZAKHARCHENKO, A.I.; IVANOV, A.A.; NIKANOROV, A.S.; NIKITIN, V.D.; RYTSK, Yu.Ye.; SMIRNOVA, V.S.; SOKOLOV, Ya.N.; SOLOV'YEV, A.T.; TSEKHOMSKIY, A.M.

In memory of Daniil Timofeevich Misharev. Trudy VSEGEI 108:189-191 '64. (MIRA 18:2)

SHPAKHLER, A.G.; KORCHAGIN, L.V.; LEVIN, S.T.; BLAGOV, I.S.; KOTKIN, A.M.; SOLOV'YEV, A.V.

Briquetting coal and anthracite breezes in a cold state. Ugol'. prom. no.6:34-36 N-D '62. (MIRA 16:2)

1. Dnepropetrovskiy gornyy institut (for Shpakhler, Korchagin, Levin). 2. Ukrainskiy proyektno-konstruktorskiy i nauchno-issledovatel'skiy institut po obogashcheniyu i briketirovaniyu ugley (for Blagov, Kotkin, Solov'yev).

(Briquets (Fuel))

SHPAKHLER, A.G.; AKSEL'ROD, E.I.; KOTKIN, A.M.; SOLOV'YEV, A.V.; ZEL'DIN, B.B.

Improving the manufacture technology in coal briquet plants.
Ugol' Ukr. 6 no.2:17-19 F '62. (MIRA 15:2)

1. Dnepropetrovskiy gornyy institut (for Shpakhler, Aksel'rod).
2. UkrNIIUgleobogashcheniye (for Kotkin, Solov'yev). 3.
Donetskgiproshakht (for Zel'din).
(Briquets (Fuel))

L 21325-65 EWT(l)/EWP(m)/EPF(c)/EPF(n)-2/EPR/T/EPA(bb)-2/EWA(l) Pd-1/Pr-4/
Ps-4/Pu-4 AEDC(a)/AFWL/SSD/ASD(f)-3/ASD(p)-3/AFETR WW

ACCESSION NR: AP5002030 S/0170/64/000/012/0085/0089

AUTHORS: Semenov, P. A.; Solov'yev, A. V.

TITLE: Liquid flow in thin layers

SOURCE: Inzhenerno-fizicheskiy zhurnal, no. 12, 1964, 85-89

TOPIC TAGS: fluid flow, friction, wave velocity, periodic motion, interface gas [illegible], high speed gas flow

ABSTRACT: The flow of a thin liquid film along a vertical wall with the friction force of a high-speed gas stream acting on its free surface was studied analytically. Experiments showed this free surface to be covered by circular waves (if flow is inside a tube) moving from bottom to top at constant speed. In the absence of these waves, an expression is derived for the pressure gradient S, $S = \frac{\tau h}{\frac{3}{4} r + h} \approx \frac{4}{3} \tau \frac{h}{r}$,

where h is the liquid film thickness. To include the wave motion, a periodic solution is superimposed on the steady-state solution by considering two types of operations: the first are averaged over time, and thus are characterized by a steady-state flow; the second are time-dependent and are expressed by

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L 21325-65
ACCESSION NR: AP5002030

$$\frac{\partial u}{\partial t} = -\frac{1}{\rho}\frac{\partial p}{\partial x} + \nu\Delta u,$$

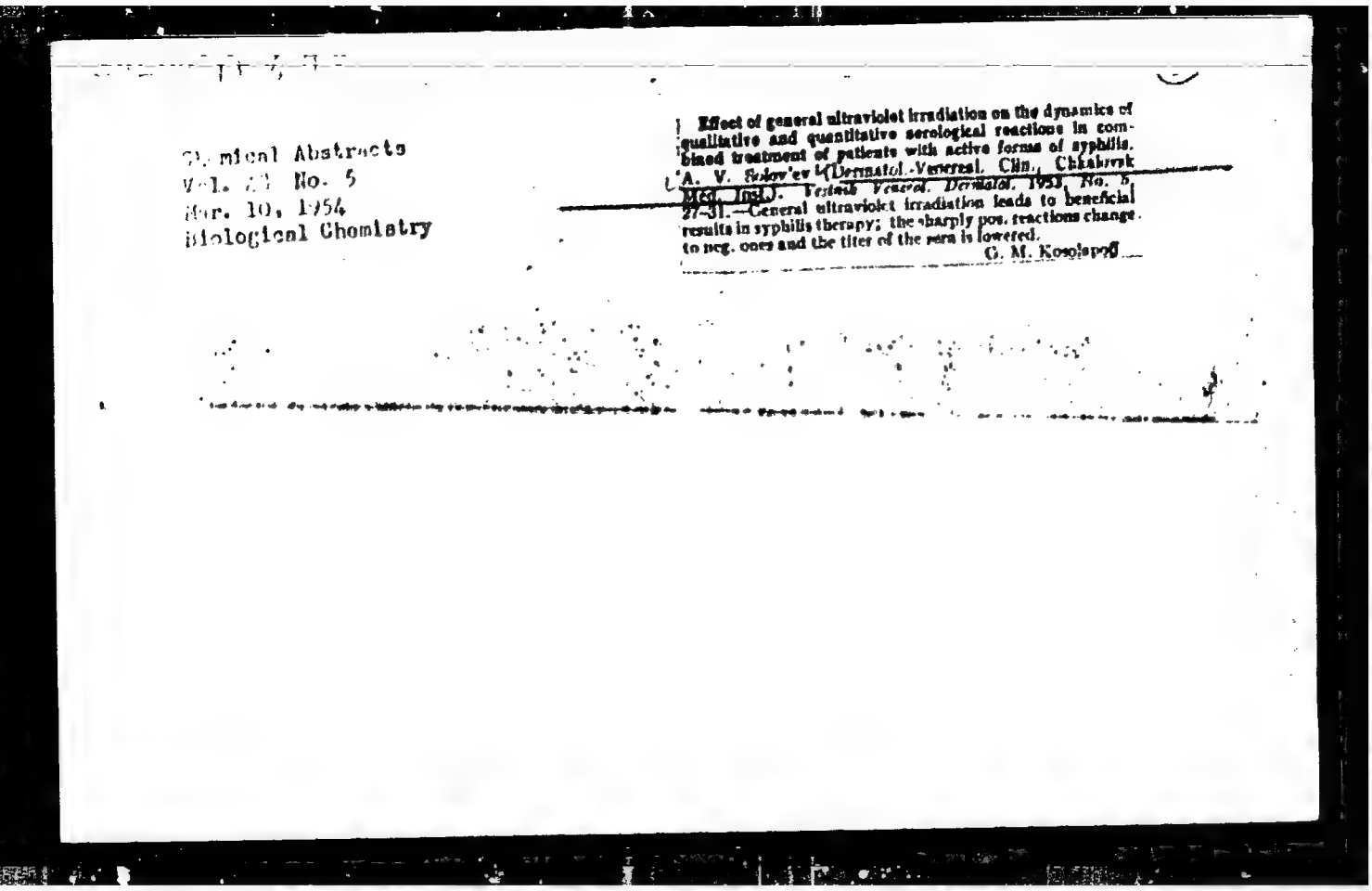
$$\frac{\partial v}{\partial t} = -\frac{1}{\rho}\frac{\partial p}{\partial y} + \nu v,$$

$$\frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} = 0.$$

After solving these equations, expressions can be derived for the tangential and normal components of the interface stress τ_0 and p, and an equation is obtained which describes this interface. Corresponding periodic stress components are obtained at the interface from the gaseous phase of the flow. For τ', this yields $\tau' = \left(\frac{2}{3}\gamma - \frac{1}{2}S\right)\eta \approx \frac{2}{3}\gamma\eta$. Finally, the speed of the propagating wave is found to be given by $W = \frac{n}{k} = \frac{\gamma h^3}{3\mu}$. Orig. art. has: 11 formulas.

ASSOCIATION: Institut khimicheskogo mashinostroyeniya g. Moscow (Moscow Institute of Chemical-Machine Design)

Card 2/3



Chemical Abstracts
Vol. 48 No. 5
Mar. 10, 1954
Biological Chemistry

Effect of general ultraviolet irradiation on the dynamics of qualitative and quantitative serological reactions in combined treatment of patients with active forms of syphilis. A. V. Sokov'ev (Dermatol.-Venereal. Clin., Chkalovsk Med. Inst.). *Vestnik Venerol. Dermatol.* 1953, No. 5, 27-31.—General ultraviolet irradiation leads to beneficial results in syphilis therapy; the sharply pos. reactions change to neg. ones and the titer of the sera is lowered.
G. M. Kosolapoff

SOLOV'YEV, A.V., dots.

Medullary hemopoiesis in rheumatic fever in children. Trudy Novosib.gos.med.inst. 27:214-224 '57. (MIRA 12:9)

1. Zaveduyushchiy kafedroy detskikh bolezney Novosibirskogo meditsinskogo instituta.
(HEMOPOIETIC SYSTEM) (RHEUMATIC FEVER)

ALEKSANDROV, A.G., dots; ARONOVICH, I.S., inzh.; BABIKOV, M.A., doktor tekhn.nauk; BATUSOV, S.V., kand.tekhn.nauk; BEL'KIND, L.D., doktor tekhn.nauk; VENIKOV, V.A., doktor tekhn.nauk; VESELOVSKIY, O.N., kand.tekhn.nauk; GOLOVAN, A.T., doktor tekhn.nauk; GOLUBTSOVA, V.A., doktor tekhn.nauk; GRATMER, L.K., inzh.; GRUDINSKIY, P.G., prof.; GUSEV, S.A., inzh.; DMOKHOVSKAYA, L.F., kand.tekhn.nauk; DROZDOV, M.G., doktor tekhn.nauk; IVANOV, A.P., doktor tekhn.nauk [deceased]; KAGANOV, I.L., doktor tekhn.nauk; KERBER, L.L., inzh.; KOCHENOVA, A.I., kand.tekhn.nauk.; LARIONOV, A.N.; MINOV, D.K., doktor tekhn.nauk; NEKRASHIL, A.V., doktor tekhn.nauk; NIKULIN, N.V., kand.tekhn.nauk; NILENDER, R.A., prof.; PANTYUSHIN, V.S., prof.; PASYNKOV, V.V., doktor tekhn.nauk; PETROV, G.N., doktor tekhn.nauk; POLIVANOV, K.M., doktor tekhn.nauk; PRIVEZENTSEV, V.A., doktor tekhn.nauk; RADUNSKIY, L.D., inzh.; RENNE, V.T., doktor tekhn.nauk; SVENCHANSKIY, A.D., doktor tekhn.nauk; SOLOV'YEV, I.I., doktor tekhn.nauk; STUPEL' F.A. kand.tekhn.nauk; TALITSKIY, A.V., prof.; TEMNIKOV, F.Ye., kand.tekhn. nauk; FEDOROV, L.I., inzh.; FEDOSEYEV, A.M., doktor tekhn.nauk; KHOLYAVSKIY, G.B., inzh.; CHECHET, Yu.S., doktor tekhn.nauk; SHNEY-BERG, Ya.A., kand.tekhn.nauk; SHUMILOVSKIY, N.N., doktor tekhn.nauk; ANTIK, I.B., red.; MEDVEDEV, L.Ya., tekhn.red.

[The history of power engineering in the U.S.S.R. in three volumes] Istoriia energeticheskoi tekhniki SSSR v trekh tomakh. Moskva, Gos. energ. izd-vo.

(Continued on next card)

ALEKSANDROV, A.G.--(continued) Card 2.

Vol.2. [Electric engineering] Elektrotekhnika. Avtorskii kollektiv toma: Aleksandrov i dr. 1957. 727 p. (MIRA 11:2)

1. Moscow. Moskovskiy energeticheskiy institut. 2. Chlen-korrespondent AN SSSR (for Larionov)
(Electric engineering)

SOV/110-59-8-19/24

AUTHORS: Rat, Ye.L., Solov'yev, A.V., Engineers.

TITLE: Mechanisation of the Foundry in an Electrical Engineering Works.

PERIODICAL: Vestnik elektropromyshlennosti 1959, Nr 8, pp 72 (USSR)

ABSTRACT: The works foundry was mechanised for greater production. The output of moulding machines was increased by installing additional rapping tables and rearranging transport facilities. The measures adopted are outlined. The arrangements for removing the castings from the moulds using shaking machines are described. The castings are fettled on the shaker, and then painted while on a conveyor which transfers them to store.

Card 1/1

SOLOV'YEV, A.V., inzh.; TIMOFEYEVICH, M.S., inzh.

Device for the automatic control of electric lighting. Svetotekhnika 7 no.5:25-27 My '61. (MIRA 14:6)
(Electric lighting)
(Automatic control)

SOLOV'YEV, A.V.

Protective properties of fluoride-silicate films of magnesium.
Zhur. prikl. khim. 36 no.11:2547-2551 N '63. (MIRA 17:1)

1. Moskovskiy institut stali i splavov.

SOLOV'YEV, A.V.

Apparatus for growing mold fungi cultures by the top method. Spirt. prom. 29 no.7:31-33 '63. (MIRA 16:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut fermentnoy i spirtovoy promyshlennosti.

S/048/60/024/006/022/030/XX
B013/B067

AUTHOR: Solov'yev, A. V.

TITLE: Effect of an Additional Admixture on the Absorption and Luminescence Spectra of Admixtures in Molecular Crystals

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 6, pp. 737-739

TEXT: In Refs. 1 and 2 it was found that different deformations of molecular crystals change the spectra of these crystals. It could be assumed that different molecules of an admixture may cause different distortions of the crystal lattice in one and the same crystal. To examine this assumption, spectra of a naphthacene impurity in a dibenzyl crystal, to which tolane had been added were studied at 20°K. The naphthacene concentration in the crystal remained unchanged. The tolane concentration was increased in each sample. The changes in the spectra are shown in Figs. 1 and 2. At some tolane concentrations, the bands were blurred. Weak lines became invisible. On a further increase of concentration, new bands

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were formed which were polarized in a similar way as the spectral bands of naphthacene in a tolane crystal. Admixture of stilbene causes similar changes. Luminescence spectra also exhibit the same changes which take place in absorption spectra (Fig. 2). It was found that the distinct and sharp bands in the spectrum of a naphthacene impurity in a dibenzyl crystal are related to the crystalline structure of the solvent. The changes observed at low concentrations of additional admixtures are related to the distortion of the crystal lattice of the solvent. The bands which are observed at high concentrations of additional admixtures are probably due to a direct interaction between the molecules of the admixtures. The changes observed in this case are probably also due to such interactions. The fact that the molecules of the crystal impurity are distributed not regularly but in groups may also be of importance. For the stilbene impurity of a dibenzyl crystal, this was confirmed by X-ray structural analysis (Ref. 8). The present paper was read at the Eighth Conference on Luminescence (Molecular Luminescence and Luminescence Analysis) which took place in Minsk from October 19 to 24, 1959. There

Effect of an Additional Admixture on the Absorption and Luminescence Spectra of Admixtures in Molecular Crystals

S/048/60/024/006/022/030/XX
B013/B067

are 2 figures and 8 Soviet references.

ASSOCIATION: Institut fiziki Akademii nauk USSR (Institute of Physics of the Academy of Sciences UkrSSR)

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24,6110

37871
S/185/62/007/005/004/013
D407/D301

AUTHOR: Solovyov, A.V.

TITLE: Absorption and luminescence of impurities in crystals of organic compounds at 20°K - VI. Effect of crystalline solvent on the frequency of electron-transitions of impurities*

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 5, 1962, 492 - 502

TEXT: The author checked experimentally the theory of H.C. Longuet-Higgins and J.A. Pople (Ref. 1: J. Chem. Phys., 27, 192, 1957), which determines the change in the frequency of electron transitions in impurity spectra as a function of the properties of the molecules of the solvent and of the impurity. The basic formula of the theory, viz.

$$\Delta\nu = -\frac{1}{6} zR^{-6}\alpha \left\{\frac{1}{4}\alpha_0 E_{10} + M_{10}^2\right\} \qquad (2)$$

was modified for crystalline solutions; $\Delta\nu$ is the difference bet-

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Absorption and luminescence of ...

ween the frequency of electron transitions in the impurity and solvent, respectively; α and α_0 - the mean polarizability of the solvent- and impurity molecules; M and E - dipole moment and energy; z - the coordination number; R - the mean distance between the centers of the impurity molecules and the nearest molecules of the solvent. The author considers the intermolecular interactions which cause a shift in the frequency of the electron transitions, as interactions between atoms of the impurity molecules and of the solvent. Hence a correction term β is introduced in formula (2), viz.

$$\rho = \frac{2\pi E_0 N_{imp.}}{2In}, \qquad \Delta\nu = -\frac{z\alpha}{6\beta R_0^6}\left\{\frac{\alpha_0 E_0}{4} + M_{10}^2\right\}, \qquad (3b)$$

which makes allowance for the fact that the molecules are not points and that all the atoms of the solvent molecule interact to the same extent with the impurity atoms, (I denotes the mean value of the ionization potential of the atom). The applicability of formula (3b) is extended to the case of constant dipole moments of the solvent molecules. Thereby formula

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$$\alpha_i = \frac{12\mu^2}{hcE_{10}} \qquad (4)$$

is obtained (μ denoting the mean value of the dipole moments of the solvent molecules) which takes into account additional polarizability, induced in the impurity molecules by the constant dipole moments of the solvent molecules. Further, the polarizability of the crystal molecules is calculated in terms of the mean value of the refraction index of the crystal, by means of the Lorentz-Lorenz formula. For that purpose, the mean index of refraction is defined by a formula. The thus calculated molecule-polarizabilities agree with those obtained by other methods. In the working formula, the atomic polarizability of the molecules is taken into account. It is shown that the value of R (formula (2)), does not fit the experimental data. According to the proposed modified formula (3b), R represents the effective intermolecular distance (unlike its interpretation in Ref. 1). The numerical value of R in all the solvents, is close to the mean intermolecular distance of carbon atoms of organic molecules of crystals. The range of variation of R is established, as well

as its dependence on the packing coefficient. The use of the modified formula (3b), obtained on the assumption that the atoms are responsible for the molecular interaction, yielded satisfactory values for all the calculated quantities. In particular, the constant dipole moments of dibenzyl and stilbene molecules were calculated. The connection between the basic formula (3b) and the corresponding formula of other theories was established. There are 4 tables and 41 references: 25 Soviet-bloc and 16 non-Soviet-bloc (including 1 translation).

ASSOCIATION: Instytut fizyky AN URSR (Institute of Physics of the AS UkrRSR) Kyyiv

SUBMITTED: November 22, 1961

IV

S/185/62/007/005/005/013
D407/D301

AUTHOR: Solovyóv, A.V.

TITLE: Absorption and luminescence of impurities in crystals of organic compounds at 20°K - VII. Effect of variable composition of mixed crystals on the frequency of the electron transitions of impurities *

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 5, 1962, 505 - 510

TEXT: This work is a continuation of the preceding article (Ref. 1: pp. 492-502). Formula (3b), obtained in Ref. 1, is used for calculating (on the basis of experimental data), the frequency shift of the electron transition in impurity spectra of naphtacene in mixed crystals of variable concentration: dibenzyl-stilbene, dibenzyl-tolane and tolane-stilbene. In the general case, the frequency shift, calculated by formula (3b) of Ref. 1, depends on the change in polarizability of the solvent, on the mean intermolecular distances (i. e. on the parameter R), and on the coordination number, viz.:

Card 1/4 * See S/185/62/007/005/004/013

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$$\Delta(\Delta\nu) = -\frac{z}{12R^6}\left\{\frac{\alpha_0 E_{10}}{4} + M_{10}^2\right\}\Delta\alpha + \frac{z\alpha}{2R^7}\left\{\frac{\alpha_0 E_{10}}{4} + M_{10}^2\right\}\Delta R - \frac{\alpha}{12R^6}\left\{\frac{\alpha_0 E_{10}}{4} + M_{10}^2\right\}\Delta z. \quad (1)$$

The first term (denoted in the following by $\Delta\nu_\alpha$) represents the magnitude of the shift, caused by the change in the polarizability of the solvent, resulting from changes in the concentration of the components of the mixed crystal. The investigated impurity spectra of naphtacene in mixed crystals, have the following property: No gradual frequency-shift due to changes in the concentration of the components, was observed; the frequency shift is sudden and takes place at a certain concentration of each mixed crystal. This effect is due to the crystalline structure of the solvent. The calculations carried out by formula (1), showed that the shifts, resulting from the change in polarizability $\Delta\nu_\alpha$ and from the change in intermolecular distance R, compensate each other. The magnitude of the shift

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is largely due to the changes in R. Thus, the impurity spectra in crystalline solutions yield information on changes in the crystalline structure of the solvent and on the various energy processes involved. Further, formula (1) is used for elucidating certain general properties of impurity spectra in crystals. The impurity spectra are composed of 3 kinds of bands which form 3 spectral series. The bands may have multiplet structure. The mean values of the quantities which enter formula (1) are used for estimating the contribution of each term to the magnitude of the shift, and to ascertain the principal reasons for the shift (by a comparison of calculated- and experimental values). The multiplet structure of the bands is related to the variable mean intermolecular distance, i.e. to the distribution of the impurity molecules in the solvent; the deformation of the solvent molecules or of the impurity molecules gives rise to a constant dipole-moment; this, in turn, leads to a considerable frequency shift. Thus, the multiplet structure of the impurity spectra is mainly due to microstructural changes in the solvent, and not to the physicochemical properties of the molecules. As the various factors which cause frequency shifts, may compensate each other, the author concludes that it is not yet possible to un-

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ambiguously ascertain the reason for the shift. The calculated and experimental values (obtained by independent methods: X-ray structural and spectral) were in good agreement; therefore formula (1) is in general correct; it requires only a refinement of the values entering in it. Formula (1) can be used for calculating frequency shifts, not below 40 - 90 cm^{-1}. Some of the calculations performed, are very approximate, yielding tentative values only. There are 15 references: 14 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Instytut fizyky AN URSR (Institute of Physics of the AS UkrRSR) Kyyiv

SUBMITTED: November 17, 1961

Card 4/4

L 01266-66 EWT(l)/EWT(m)/EPF(c)/EWP(j) IJP(c) RM

ACCESSION NR: AP5020788 UR/0048/65/029/008/1307/1308

AUTHOR: Vorob'yev, V. P.; Solov'yev, A. V.; Shpak, M. T.

TITLE: Luminescence of the products of photolysis of crystalline triphenylmethane at 20°K [Report, 13th Conference on Luminescence held in Khar'kov 25 June to 1 July 1964]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 8, 1965, 1307-1308

TOPIC TAGS: photolysis, organic crystal, free radical, luminescence analysis, electron paramagnetic resonance

ABSTRACT: Two of the authors and collaborators have previously found that irradiation of triphenylmethane crystals at 20°K with unfiltered light from a mercury arc gives rise to five new bands in the luminescence spectrum, which they have called the A, B, C, D, and E bands, in order of increasing wavelength (Ukr. fiz. zh., 7, 422, 1962). The present paper reports results of an examination of initially very pure triphenylmethane crystals which have been further purified by zone refining. After irradiation with mercury arc light these crystals showed only the A band, the B, C, D, and E bands being absent. The A luminescence band of the purified irradiated crystals was identical with the luminescence spectrum

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ACCESSION NR: AP5020788

of triphenylmethyl radicals produced in other samples by chemical means, and the electron paramagnetic resonance spectra of the purified irradiated crystals and the crystals containing chemically produced triphenylmethyl radicals were also identical. It is concluded the A luminescence band induced in triphenylmethane crystals by irradiation with mercury light is due to triphenylmethyl radicals, and that the B, C, D, and E bands are due to impurities. It is noted that the luminescence method for analysing the photolysis products of crystalline triphenylmethane is more sensitive than the electron paramagnetic resonance method. "The authors are deeply grateful to A.F.Prikhot'ko, under whose direction this work was performed, for his constant interest and help." Orig. art. has: 1 figure.

ASSOCIATION: Institut fiziki Akademii nauk UkrSSR (Institute of Physics, Academy of Sciences, UkrSSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: SS, OP

NO REF SOV: 001 OTHER: 002

Card 2/2

SEMENOV, P.A.; SOLOV'YEV, A.V.

Regular wave conditions of the flow in film absorbers under conditions of an ascending direct flow. Trudy MIKHM 26:60-64 '64. (MIRA 18:5)

SOLOV'YEV, A.V. [Soloviov, A. V.]

Absorption and luminescence of impurities in crystals of organic compounds at 20°K. Part 5: Spectra of naphthacene in certain mixed crystals of variable composition. Ukr. fiz. zhur. 6 no.1:66-76 Ja-F '61. (MIRA 14:6)

1. Institut fiziki AN USSR, g. Kiyev.
(Naphthacene—Spectra)

SOLOV'YEV, A.V. [Soloviov, A.V.]

Absorption and luminescence of impurities in crystals of organic compounds at 20°K. Part 4: Spectra of anthracene in crystals of certain polyphenyls. Ukr. fiz. zhur. 6 no.1:56-65 Ja-F '61. (MIRA 14:6)

1. Institut fiziki AN USSR, g. Kiyev.
(Anthracene—Spectra)
(Polyphenyls)

SHPAK, M.T.; SOLOV'YEV, A.V. [Solovyov, A.V.]; SHEREMET, N.I.; DMITRENKO, I.P. [Dmytenko, O.P.]

Spectra investigation of chemical transformations in crystalline triphenylmethane. Ukr.fiz.zhur. 7 no.4:422-429 Ap '62. (MIRA 15:8)

1. Institut fiziki AN UkrSSR, g. Kiyev.
(Methane) (Chemical reactions)

SHPAK, M.T.; SOLOV'YEV, A.V.; SHEREMET, N.I.

Nature of the luminescence spectra of crystalline benzene at low temperatures. Opt.i spektr. 13 no.5:694-700 N '62. (MIRA 15:12)

(Benzene crystals—Spectra)

SOV/51-6-2-30/39

AUTHOR: Solov'yev, A.V.

TITLE: Effect of an Additional Impurity on the Impurity Absorption and Luminescence Spectra of Molecular Crystals (Vliyaniye dopolnitel'noy primesi na spektry primesnogo pogloshcheniya i lyuminestsentsiyu molekulyarnykh kristallov)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 2, pp 258-259 (USSR)

ABSTRACT: The author studied the effect of stilbene on the absorption (Fig 1a) and luminescence (Fig 2a) spectra of naphthacene dissolved in a crystal of dibenzyl. The amount of stilbene was gradually increased while the amount of naphthacene was kept constant. It was found that, at small concentrations of stilbene, intense naphthacene absorption lines are broadened, while weak lines disappear altogether, as the concentration of stilbene is increased (Figs 1b and 1v). On addition of stilbene some of the naphthacene lines close to the intense lines but on the side of low frequencies are intensified, while the naphthacene lines on the side of high frequencies are weakened. At high concentrations of stilbene (5-10% or more) a series of wide bands appears between the naphthacene bands (Figs 1g and 1d). At the same time intensity of the naphthacene bands decreases. The wide bands which appear at high

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stilbene concentrations are similar in form and polarization to the absorption bands of naphthacene in stilbene (Ref 3) but are displaced by 400 cm^{-1} towards high frequencies. The author concludes that these wide bands are due to absorption by those naphthacene molecules whose nearest neighbours are stilbene rather than dibenzyl molecules. Similar behaviour is observed in luminescence spectra (Fig 2). Fig 2a represents the luminescence spectrum of naphthacene in dibenzyl, while Fig 2b-d shows the spectra with increasing amounts of stilbene. The observed effects are primarily due to interactions of stilbene with dibenzyl at low concentrations of stilbene. At high concentrations of stilbene the latter interacts directly with naphthacene. Detailed results of this and other investigations will be published later. There are 2 figures and 5 Soviet references.

SUBMITTED: July 29, 1958

Card 2/2

PRIKHOT'KO, A.F. [Prykhot'ko, A.F.]; SOLOV'IEV, A.V. [Soloviov, A.V.]

Absorption and luminescence of impurities in organic crystals at 20°K. Part 1: Spectra of naphthacene solutions in dibenzyl and diphenyl crystals [with summary in English]. Ukr. fiz. zhur. 4 no.1:92-107 Ja-F '59. (MIRA 12:6)

1. Institut fiziki AN USSR.
(Naphthacene--Spectra) (Bibenzyl crystals) (Biphenyl crystals)

PRIKHOT'KO, A.F. [Prykhot'ko, A.F.]; SOLOV'YEV, A.V. [Soloviov, A.V.]

Absorption and luminescence of impurities in organic compound crystals at 20° K. Part 2: Spectra of naphthacene solutions in the crystals of certain uncondensed aromatic hydrocarbons. Ukr. fiz. zhur. 4 no.2: 229-238 Mr-Ap '59. (MIRA 13:1)

1. Institut fiziki AN USSR.
(Naphthacene--Spectra) (Crystals)
(Hydrocarbons)

GORDEYEV, G.S., prof.; YAKUSHKIN, D.I., Prinimali uchastiye: GORSKAYA, M.V.; GRANOVSKAYA, A.Ye.; YEVSTIGNEYEVA, Yu.G.; KRYLOV, M.V.; LEYKIN, D.I.; MAKHOVETSKIY, V.B.; MEYENDORF, A.L.; NAZARENKO, V.I.; NICHIPORUK, O.K.; PAVLOV, L.I.; RUMYANTSEVA, N.V.; SOSENSKIY, I.I.; CHERNEVSKIY, Yu.V., TULUPNIKOV, A.I., red.; SOLOV'YEV, A.V., prof., red.; RAKITINA, Ye.D., red.; ZUBRILINA, Z.P., tekhn.red.

[Agriculture in capitalist countries; a statistical manual] Sel'skoe khoziaistvo kapitalisticheskikh stran; statisitcheskii sbornik. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1958. 247 p. (MIRA 12:5)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut ekonomiki sel'skogo khozyaystva. 2. Otdel nauchnoy informatsii po ekonomike i organizatsii sel'skogo khozyaystva zarubezhnykh stran Vsesoyuznogo nauchno-issledovatel'skogo instituta ekonomiki sel'skogo khozyaystva (for all except Tulupnikov, Solov'yev, Rakitina, Zubrilina). 3. Direktor Vsesoyuznogo nauchno-issledovatel'skogo instituta ekonomiki sel'skogo khozyaystva (for Tulupnikov). 4. Zamestitel' direktora Vsesoyuznogo nauchno-issledovatel'skogo instituta ekonomiki sel'skogo khozyaystva (for Solov'yev).
(Agriculture--Statistics)

TULUPNIKOV, A.I.. Prinimali uchastiye: BAKULIN, I.I.; VIKHLYAYEV, A.P.; DUBOROV, N.T.; KABANOV, P.N.; PIS'MENNYY, I.G.; POPOV, N.I., prof., doktor ekon.nauk, retsenzent; SOLOV'YEV, A.V., prof., doktor ekon.nauk, retsenzent; MAKAROV, N.P., retsenzent; OKHAPKIN, K.A., kand.nauk, retsenzent; GORYACHKIN, M.I., kand.nauk, retsenzent; RUSAKOV, G.K., kand.nauk, retsenzent; MURATOV, D.G., kand.nauk, retsenzent; CHERE-MUSHKIN, S.D., kand.nauk, retsenzent; TOLOV, V.V., retsenzent.

[Economic basis for agricultural administration] Voprosy ekonomicheskogo obosnovaniia sistem vedeniia sel'skogo khoziaistva. Moskva, 1960. 275 p. (MIRA 13:6)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut ekonomiki sel'skogo khozyaystva. 2. Vsesoyuznyy nauchno-issledovatel'skiy institut ekonomiki sel'skogo khozyaystva (for Bakulin, Vikhlyayev, Duborov, Kabanov, Pis'mennyy, Popov.)
(Farm management)